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Digital Transformation in Agricultural Practices: A Legal and Management Framework with Educational Implications

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	Abstract: The analysis of the business to increase its application to gather substantial finance, and leave positive educational implications has been enabled with the aid of the management framework of digital transformation. The study has highlighted the innovative measures in the management framework and the education implications of such a process and examined the collected secondary qualitative data from the search database of Google Scholar.
	Keywords: Digital Transformation, Agricultural Practices, Management Framework, Legal Framework, Educational Implications, Increased efficiency

Introduction

Digital transformation in terms of agricultural practices has helped in the clearing of areas of problematization, and helped in supporting the responsibilities of the industry. As dictated by Luo et al. (2023), the creation of a sustainable future has been administered with the help of digital technologies, through the establishment of a greater management framework. On the other hand, in the thoughts and beliefs of Rijswijk et al. (2021), digital tools have also acted as a legal framework with socio-cyber-physical systems for an increased educational implication.
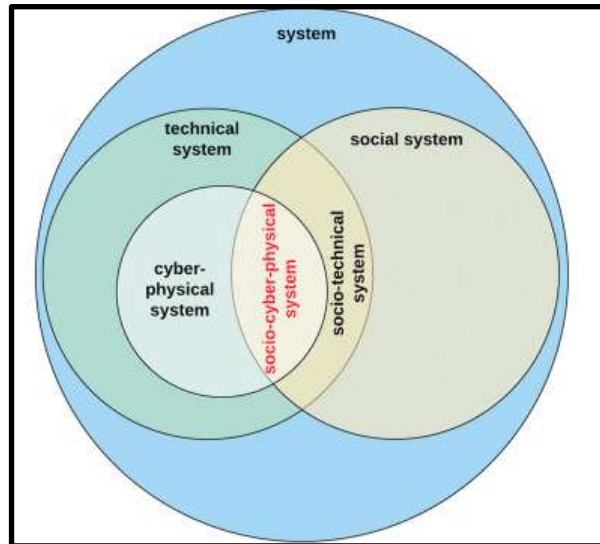
Figure 1: Socio-cyber-physical systems through digital transformation in agricultural industry

(Source: Rijswijk et al. 2021)

Hence, the usage of digital technologies has played a significant role in moderating an improved outcome with educational results.

Aim

The study has aimed to examine in an in-depth manner the importance of digital transformation within the agricultural industry to act as a legal and administrative model with increased educational outcomes.

Objectives

The objectives developed for the assessment of the study are as follows:

RO1: To inspect the factors associated with the management framework of digital transformation in agricultural practices

RO2: To review the elements of the legal framework of digital transformation in agricultural practices

RO3: To scrutinise the significance and issues of digital transformation in agricultural practices with improved educational implications

RO4: To examine the tactics necessary for increasing legal and management framework with educational implications through digital transformation in agricultural practices

Literature Review

Assessment of the factors related to the management background of digital transformation in agricultural practices

Digital transformation has acted as a management framework to increase the administration and operations of agricultural practices. According to the opinions of Burbules, Fan & Repp (2020), digital tools such as Artificial Intelligence and Machine Learning have increased the ability of the sector to identify new trends and moderate their working measures to see an improvement. On the other hand, according to the suggestions of Liu et al. (2020), the utilisation of geographic data and the increase in the yield of produce from manual tasks has also been enabled. The impact of knowledge and education gained within the agricultural stakeholders with the help of a digital tool to keep track of operations

such as harvesting, sowing seeds, and others, has increased the total number of investors. Therefore, the integration of digital transformation has included educational practices with the expansion of management efficiency in the farms.

Inspection of the elements of the legal framework of digital transformation in agricultural practices

The laws of agricultural aspects entangle the norms and the policies around the supply chain management of the industry, the storage and the utilisation of the data, and the creation of a transparent working practice. According to the comments by Jung et al. (2021), understanding of moral responsibilities of the agricultural industry to increase the overall health and safety of the consumers, also falls under the legal and management practice of agriculture. On the other hand, as depicted by Rijswijk et al. (2021), data governance and the process of responsibilisation of agricultural practices which are modulated with the help of problematization to increase the ethical standards of digital transformation have also been observed. Through innovation and educational growth, the disclosure of new sets of evidence for increasing the efficiency of agricultural grounds has been enabled through digital transformation. Hence, the legal aspects of digitalisation surround moral responsibilities, improved efficiency, and innovation.

Pros and cons of digital transformation in increasing educational implications within the agricultural industry

A rise in agricultural knowledge increases the various aspects of efficiency, productivity, and sustainability within the working arena of farms and fields. As stated by Raj et al. (2021), the knowledge of the Internet of Things (IoT), AI and ML, cloud computing, and similar others have been seen to expand the data analysis of agricultural information, allowing the administrators to keep a check on the varying operative aspects. However, according to the views of Alaql, Alqurashi & Mehmood (2023), the new methods of data-driven processes which alter the working dynamics and brings into the limelight the various demands and trends in the agricultural industry, are impacted negatively through the changed decision makings. The new entrants into the agriculture sector have the potential to reduce communication within a local agriculture arena that hampers the foundations of driving agriculture systems. Such an aspect drastically decreases the oral potential of the agricultural industry due to the innovative methods applied by the new entrance is a form of educational implication. Therefore it can be highlighted that the presence of digital transformation for increasing educational results can have both beneficial and negative results in the agriculture industry.

Methodology

The steps applied in the data gathering and laying an extensive assessment of the same, for meeting the aim and the objectives of a study, are achieved with the help of research methodology (Al-Ababneh, 2020). The study has been approached with the help of an inductive research approach, as it helps in drawing a theoretical relationship between the aligning elements of the study. Descriptive research design has been integrated, for the creation of a broad spectrum and elaborate assessment of the gathered information. Secondary qualitative data has been obtained from the digital search database of Google Scholar, and the interpretation of the same has been enabled with the help of thematic

analysis. As per the point of view of Sileyey (2019), thematic analysis provides a flexible framework for examining the numerous data and creating an all-round study.

Findings

Elements addressing the management framework of digital transformation included in the agriculture industry

Various elements identified in the management framework of digital transformation are the presence of digital tools and technology such as AI, machine learning, cloud computing, data analytics, and similar others. According to the findings by Trukhachev et al. (2019), the association of such innovative processes to drive agricultural systems increasing diagnostic understanding and meeting the new demands of the consumers is achieved with the help of an effective management framework.
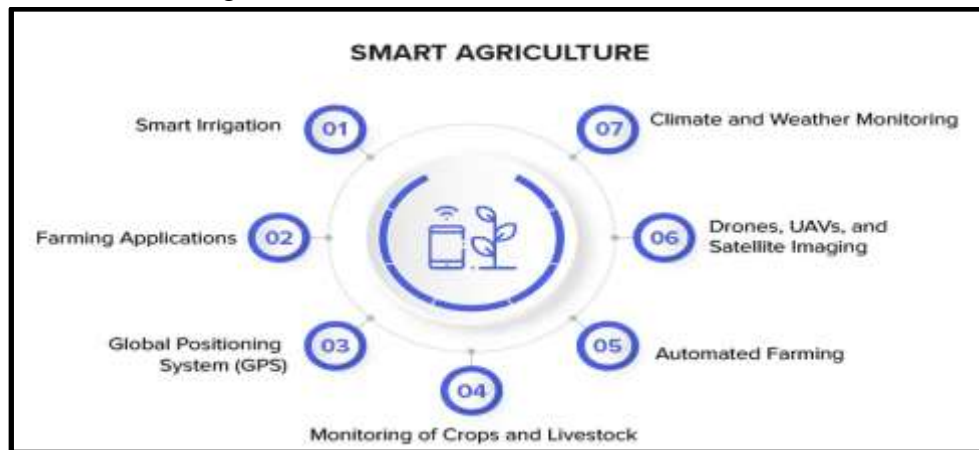

Figure 2: Digital transformation in the agricultural industry
(Source: Trukhachev et al. 2019)

On the other hand, as per the comments by Hrustek (2020), the expansion of knowledge about agricultural practices by agricultural leaders and managers helps them to administer key processes to improve the operations in the farms. With the help of digital tools, the inspection of the internal and external variables, such as the genetic content of the crops and soil condition, respectively, helps the administrators to take necessary steps to increase the overall outcome of the agriculture industry. Therefore, the digital transformation framework acts as a model for driving greater innovation within the agriculture industry and helping the expansion of knowledge of the linked stakeholders.

Factors of legal associations of digital transformation in agriculture practices and its educational implications

Data governance acts as a vital factor in illegal associations that are bound with digital transformation within the sector of agriculture. According to the workings by Raheem, Shishaev & Dikovitsky (2019), the storage of information and the utilisation of the same, for handling digital tools and technology and bringing in a greater association with the different levels of the hierarchy, falls under the legal lotions of digitalisation. With the rise in digital communications in the agricultural sector, effective transfer of information to increase the overall efficiency of the industry can be achieved. However, as per the notions by Gardner et al. (2019), transparency and visibility within the agriculture industry through the transfer of private corporate data from one source to another ought to be handled with the help of stringent laws and regulations. Educating the farmers and workers in the agriculture sector

through effective information and increasing the working efficiency with the help of digital technologies are addressed under transparent legal notions. Therefore, a balance needs to be maintained in terms of data provision and acquisition information for making tactical decisions to handle agriculture innovations with digital transformation.

Significance and shortcomings of digital transformation identified in agriculture practices through improved educational implications

Digital transformation has enabled an extensive rise in agriculture knowledge due to the effective transfer of data within the global platform and a direct increase in innovation and creativity. As per the statements by Saiz-Rubio & Rovira-Más (2020), the methods which are applied in improving decision making capabilities for inducing a greater farm management has been achieved with the help of digital machines and increased sensor networks. On the other hand, as thought by Singh, Berkvens & Weyn (2021), analysis of potential impact of effective agriculture management has been enabled through data analysis of agriculture practices and identifying the patterns and trends in market management. However, certain issues regarding the differential nature of data examination which can alter the change in roles of agriculture administration can pose a significant threat in educational implications. This is due to the fact that the altered methods of management can hinder streamlined decision making and reduce the overall efficiency of administering methodical digital disruptions. Therefore, a balance framework needs to be integrated within the digital system to manage the proceedings in a significant manner and increase the overall potential of digital description in agriculture.

Strategies for handling legal and management framework of digital transformation for improved educational outcomes in agriculture sector

Effective communication and following the framework of data governance is to be taken into consideration during the application of digital transformation in the agriculture industry. As per the depictions by Ciruela-Lorenzo et al. (2020), the policies and the norms of transmitting data between the sources without hampering ethical framework needs to be administrators for handling both legal and operation models of digital transformation.
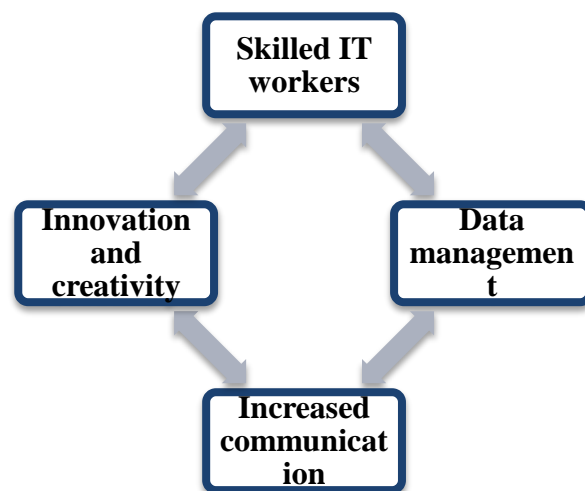

Figure 3: Strategies for improving digitalisation of agriculture divisions
(Source: Influenced by Pandey, Balusamy & Chilamkurti, 2023)

On the other hand, according to the thoughts by Pandey, Balusamy & Chilamkurti (2023), recruitment of skilled IT labourers within the agriculture industry is required for handling change management of digital disruption and enabling an overall betterment in the practices. Through an improved transfer of knowledge, the potential of improved digital applications within agriculture can be achieved.

Discussion

Bringing in effective communication and stringent lawns has been noted to have a major impact on legal and management governance. Unclear data governance arrangements due to the fragmentation of the information when passed from one source to another can decrease the overall efficiency of digital solutions and hinder the outcome of the sector. As per the views of Menon & Jain (2021), bringing in clarity for increased decision making practices in the agriculture sector is to be handled in an equilibrated manner, by making data available and accessible for policy making. As per Bacco et al. (2019), with the inclusion of smart farming improvement within the organisational capabilities, handling the needs and the demands of the future agricultural necessities can be noted. Through the increase in education of all administration and management, the stakeholders associated with the agriculture industry have the potential to obtain a greater outcome of the digital tools.

Conclusion

Hence, as determined in the study, the application of digital transformation has acted as a framework, both legal and administrative, for increasing the efficiency of agricultural practices. In addition to such, it has helped in improving the educational grounds related to the agricultural measures and caused an improvement in the customisation of agricultural methods. Such an aspect has been reached through increased technological betterment, and the inclusion of innovation and creativity amongst the measures. The examination of the concepts arising through problematization, in terms of educational expansion and the induction of socio-cyber-physical systems has been involved with the help of digital transformation.

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